UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,408	02/06/2004	Derek D. Kumar	6665.110A	2073

7590 06/27/2007

Joseph W. Berenato, III
Liniak, Berenato & White, LLC
Suite 240
6550 Rock Spring Drive
Bethesda, MD 20817

EXAMINER	
ZHENG, EVA Y	
ART UNIT	**PAPER NUMBER**
2611	

MAIL DATE	DELIVERY MODE
06/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/772,408	KUMAR, DEREK D.
	Examiner	Art Unit
	Eva Yi Zheng	2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *2/6/04* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Regarding to claims 25, 26, 30 and 31, "a power sensing circuit" and "a power level feedback signal". Regarding to Claim 32, "a second receiver" with "a second demodulator". There's a lack of antecedent basis in specification.

Claim Objections

3. Claim 9 is objected to because of the following informalities: on line 2, please delete the period after "said".

4. Claim 25 is objected to because of the following informalities: claim 25 should be dependent upon claim 23 instead of 21.

5. Claim 26 is objected to because of the following informalities: claim 26 should be dependent upon claim 25 instead of 23.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 24 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite lack of antecedent basis.

Claims 24 and 29 recite the limitation "said digital filtered signal" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1, 2, 5, 7, 8, 10-22, 27 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamlou et al (US 6,690,949) in view of Muhammad et al (US 2003/0080888), further in view of Hansen (US 2002/0097791).

a) Regarding to claims 1 and 5, Shamlou et al disclose a wireless audio signal transmission system, comprising:

an analog signal source generating an analog audio signal of a desired audio bandwidth (58 in Fig. 1, wherein the baseband processor include a microphone, Col 4, L7-20);

an analog signal sampling circuit (the baseband processor include sampling and analog-to-digital converter, Col 4, L7-20); and

a digital modulator responsive to said error control coded digital signal, wherein said digital modulator generates a representation of a desired RF signal for transmission to a receiver (38 in Fig. 2, wherein the shaping filter is a DQPSK modulator, Col 4, L56-67).

Shamlou et al disclose all the subject matters above except for the specific teaching of (1) ADC is responsive to the analog audio signal and generating a sequence of low bit weight digital words, wherein said low bit weight words comprise binary words having four or fewer bits per word; and wherein the sampling circuit samples the audio signal at a sampling frequency substantially greater than twice the highest frequency for the desired bandwidth of the audio signal. (2) A data encoder that encodes the signal into an error control coded digital signal.

However, (1) Muhammad et al disclose a sigma-delta analog-to-digital converter that use low multi-bit (two, three, or four bit), and operate at much higher frequencies, which refers to as oversampling ([0004]; Fig. 1). It is well known in the art that oversampling is a signal sampled at a frequency higher than the Nyquist frequency so

as to avoid aliasing. The sigma-delta ADC makes the precision requirements much lower than the PCM ADC and operates at higher frequencies. Therefore, it is obvious to one of ordinary skill in art to combine the teaching of sigma-delta ADC of Muhammad with the RF transmitter of Shamlou et al. By doing so, provide noise shaping and high frequency operation in a radio communication system.

(2) Hansen disclose that a transceiver that comprises a transmitter for transmitting voice signal through a source and provide data through a scrambler and a forward error correction (FEC) unit (18 and 28 in Fig. 1). In this way, specific bit loading can be performed (abstract). Therefore, it is obvious to one of ordinary skill in art to combine the encoding teaching of Hansen with the RF transmitter of Shamlou et al. By doing so, optimize bit rates and error rates.

b) Regarding to claims 2 and 19, Muhammad et al disclose wherein said analog signal sampling circuit generates a sequence of low bit weight digital words having one bit per word (ADC use single bit; [0004]).

c) Regarding to claim 7, Hansen disclose wherein said encoder comprises:

a scrambler responsive to said series of low bit weight words generating, through binary addition with a deterministic sequence of ones and zeros, a randomized sequence (28 in Fig. 1);

a forward error control encoder responsive to said randomized sequence to generate a plurality of coded output bits for each randomized sequence input bit (FEC 28 in Fig.1); and

an interleaver responsive to said plurality of coded output bits and generating a shuffled sequence comprising said error control coded digital signal (30 in Fig. 1).

d) Regarding to claim 8, Shamlou, Muhammad and Hansen are silent about the interleaver length. However, it would have been obvious to one of ordinary skill art to modify the RF system of Shamlou with less than one millisecond interleaver length when data is transmitted at one megabit per second, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, Eli f.2d 272, 205 USPQ 215

e) Regarding to claim 10, Shamlou et al disclose wherein said modulator generates an RF signal in an unlicensed frequency band (900MHz, Col 3, L39-45).

f) Regarding to claims 11-13, Shamlou et al teaches GSM communication system operate in 900MHz or 1900MHz, etc, but is silent about specific frequency range as claimed. However, it would have been obvious to one of ordinary skill in the art to operate Shamlou et al's system at higher frequencies such as claimed. Applicant has not discloses a reason or advantage to operate in such frequency ranges. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with Shamlou et al because they are both direct to wireless audio communication. Therefore, it would have been obvious to one of ordinary skill in art to modify Shamlou et al to obtain the invention as specified in claims.

g) Regarding to claim 14, Shamlou et al disclose wherein said analog signal source comprises a transducer (microphone, Col 4, L15-20).

h) Regarding to claim 15, Shamlou et al disclose wherein said transducer comprises a microphone (Col 4, L15-20).

i) Regarding to claim 16, Shamlou et al disclose

an antenna responsive to said desired RF signal (22 in Fig. 2); and

a housing adapted to support said microphone, said delta-sigma modulator, said data encoder, said digital modulator and said antenna (transmitter shown in Fig. 2).

i) Regarding to claims 17 and 18, Shamlou et al disclose a method for transmitting a Radio Frequency (RF) signal corresponding to an analog audio or acoustic signal, comprising the method steps of:

(a) converting an analog audio or acoustic signal (Fig. 1; the baseband processor include sampling and analog-to-digital converter, Col 4, L7-20);

(c) modulating an RF carrier signal with said encoded low bit weight digital signal to generate an encoded low-bit weight digital transmission signal (38 in Fig. 2, wherein the shaping filter is a DQPSK modulator, Col 4, L56-67); and

(d) transmitting said encoded low-bit weight digital transmission signal (22 in Fig. 1).

Shamlou et al disclose all the subject matters above except for the specific teaching of (1) converting analog signal into a low bit weight digital words comprising four or fewer bits per word. (2) encoding to provide error correction code.

However, (1) Muhammad et al disclose a sigma-delta analog-to-digital converter that use low multi-bit (two, three, or four bit), and operate at much higher frequencies, which refers to as oversampling ([0004]; Fig. 1). The sigma-delta ADC makes the

precision requirements much lower than the PCM ADC and operates at higher frequencies. Therefore, it is obvious to one of ordinary skill in art to combine the teaching of sigma-delta ADC of Muhammad with the RF transmitter of Shamlou et al. By doing so, provide noise shaping and high frequency operation in a radio communication system.

(2) Hansen disclose that a transceiver that comprises a transmitter for transmitting voice signal through a source and provide data through a scrambler and a forward error correction (FEC) unit (18 and 28 in Fig. 1). In this way, specific bit loading can be performed (abstract). Therefore, it is obvious to one of ordinary skill in art to combine the encoding teaching of Hansen with the RF transmitter of Shamlou et al. By doing so, optimize bit rates and error rates.

k) Regarding to claim 20, Hansen disclose a FEC encoder (28 in Fig. 1). It is well known that convolutional error correction perform FEC.

l) Regarding to claim 21, Shamlou et al disclose wherein modulating step (c) comprises modulating an RF carrier signal with said encoded low bit weight digital signal using QAM quadrature amplitude digital modulation methods to generate an encoded low-bit weight digital transmission signal (Col 4, L56-67).

m) Regarding to claim 22, Shamlou et al disclose wherein modulating step (c) comprises modulating an RF carrier signal with said encoded low bit weight digital signal using QPSK quadrature phase shift keying digital modulation methods to generate an encoded low-bit weight digital transmission signal (Col 4, L56-67).

n) Regarding to claim 27, Shamlou et al disclose a wireless audio signal transmission system, comprising:

an analog signal source generating an analog audio signal of a desired audio bandwidth (58 in Fig. 1, wherein the baseband processor include a microphone, Col 4, L7-20);

an analog signal sampling circuit (the baseband processor include sampling and analog-to-digital converter, Col 4, L7-20); and

a digital modulator responsive to said error control coded digital signal, wherein said digital modulator generates a representation of a desired RF signal for transmission to a receiver (38 in Fig. 2, wherein the shaping filter is a DQPSK modulator, Col 4, L56-67);

a receiver including a demodulator responsive to said RF signal and configured to generate a digital low bit weight digital signal (14 in Fig. 1).

Shamlou et al disclose all the subject matters above except for the specific teaching of (1) ADC is responsive to the analog audio signal and generating a sequence of low bit weight digital words, wherein said low bit weight words comprise binary words having four or fewer bits per word; and wherein the sampling circuit samples the audio signal at a sampling frequency substantially greater than twice the highest frequency for the desired bandwidth of the audio signal. (2) a data encoder to encode error control coded digital signal.

However, (1) Muhammad et al disclose a sigma-delta analog-to-digital converter that use low multi-bit (two, three, or four bit), and operate at much higher frequencies,

which refers to as oversampling ([0004]; Fig. 1). It is well known in the art that oversampling is a signal sampled at a frequency higher than the Nyquist frequency so as to avoid aliasing. The sigma-delta ADC makes the precision requirements much lower than the PCM ADC and operates at higher frequencies. Therefore, it is obvious to one of ordinary skill in art to combine the teaching of sigma-delta ADC of Muhammad with the RF transmitter of Shamlou et al. By doing so, provide noise shaping and high frequency operation in a radio communication system.

(2) Hansen disclose that a transceiver that comprises a transmitter for transmitting voice signal through a source and provide data through a scrambler and a forward error correction (FEC) unit (18 and 28 in Fig. 1). In this way, specific bit loading can be performed (abstract). Therefore, it is obvious to one of ordinary skill in art to combine the encoding teaching of Hansen with the RF transmitter of Shamlou et al. By doing so, optimize bit rates and error rates.

o) Regarding to claim 32, Shamlou disclose that the RF communication system uses transmitters and receivers (Col 1, L1-14), wherein comprises a modulator and demodulator, respectively (16 and 28 in Fig. 1). Therefore, it is obvious to one of ordinary skill in art to provide a second receiver including a second demodulator by the teaching of Shamlou in combination with the teaching of Muhammad so as to configured to generate a second digital low bit weight digital signal. By doing so, provide receiver diversity and improve signals receiving quality.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shamlou et al (US 6,690,949) in view of Muhammad et al (US 2003/0080888), further in view of Hansen (US 2002/0097791), and further in view of Peters et al (US 6,876,697).

Regarding to claim 6, Shamlou, Muhammad and Hansen disclose all the subject matters above except for the specific teaching of analog I and Q signals and a I/Q modulator.

However, Peters disclose a transmitter in a wireless communication system comprises an in-phase analog signal (17 in Fig. 2) and a quadrature analog signal (15), and a I/Q modulator (20) having a first input responsive to the in-phase analog signal and having a second input responsive to the quadrature analog signal to generate an RF signal. This is sufficient to bias the I/Q modulator to maximum gain (Col 4, L13-22). Therefore, it is obvious to one of ordinary skill in art to combine teaching of in-phase, quadrature analog signal and analog I/Q modulator of Peters with the RF transmitter of Shamlou et al. By doing so, optimize signal gain at transmitter in a wireless communication system.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shamlou et al (US 6,690,949) in view of Muhammad et al (US 2003/0080888), further in view of Hansen (US 2002/0097791), and further in view of A. Jacobsen (US 2003/0193889).

Regarding to claim 9, Shamlou, Muhammad and Hansen disclose all the subject matters above except for the specific teaching of forward error control input to a parallel to serial converter.

However, A. Jacobsen disclose a wireless communication device comprises a transmitter, wherein data to be transmitted is applied to FEC (312), and interleaver (314) and then to S/P converter (316 in Fig. 3). These are well know and common processors in a wireless communication system. Therefore, it is obvious to one of ordinary skill in art to implement to FEC, interleaving, and S/P teaching of A. Jacobsen in the RF communication system of Shamlou. By doing so, provide proper constellation point from modulation in a transmitter.

12. Claims 3, 4, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamlou et al (US 6,690,949) in view of Muhammad et al (US 2003/0080888), further in view of Hansen (US 2002/0097791), and further in view of Watanabe (US 7,136,420).

a) Regarding to claims 3, 4 and 33, Shamlou et al disclose a wireless audio signal transmission system, comprising:

an analog signal source generating an analog audio signal of a desired audio bandwidth (58 in Fig. 1, wherein the baseband processor include a microphone, Col 4, L7-20);

an analog signal sampling circuit (the baseband processor include sampling and analog-to-digital converter, Col 4, L7-20); and

a digital modulator responsive to said error control coded digital signal, wherein said digital modulator generates a representation of a desired RF signal for

transmission to a receiver (38 in Fig. 2, wherein the shaping filter is a DQPSK modulator, Col 4, L56-67).

Shamlou et al disclose all the subject matters above except for the specific teaching of (1) ADC is responsive to the analog audio signal and generating a sequence of low bit weight digital words, wherein said low bit weight words comprise binary words having four or fewer bits per word; and wherein the sampling circuit samples the audio signal at a sampling frequency of substantially 2.8224 megahertz. (2) a data encoder to encode error control coded digital signal.

However, (1) Muhammad et al disclose a sigma-delta analog-to-digital converter that use low multi-bit (two, three, or four bit), and operate at much higher frequencies, which refers to as oversampling ([0004]; Fig. 1). The sigma-delta ADC makes the precision requirements much lower than the PCM ADC and operates at higher frequencies. In addition, Watanabe disclose that delta sigma modulator operate at sampling frequency of 2.8224 megahertz, which is substantially greater than forty thousand times and eighty thousand times per second. Therefore, it is obvious to one of ordinary skill in art to combine the teaching of sigma-delta ADC of Muhammad and sampling frequency rate of Watanabe with the RF transmitter of Shamlou et al. By doing so, provide noise shaping and high frequency operation in a radio communication system..

(2) Hansen disclose that a transceiver that comprises a transmitter for transmitting voice signal through a source and provide data through a scrambler and a forward error correction (FEC) unit (18 and 28 in Fig. 1). In this way, specific bit loading

can be performed (abstract). Therefore, it is obvious to one of ordinary skill in art to combine the encoding teaching of Hansen with the RF transmitter of Shamlou et al. By doing so, optimize bit rates and error rates.

13. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamlou et al (US 6,690,949) in view of Muhammad et al (US 2003/0080888), further in view of Jackson et al (US 5,592,165).

a) Regarding to claim 23, Shamlou et al disclose a wireless communication system comprises a transmitter (12 in Fig. 1) and a receiver (10 in Fig. 1) corresponding to a modulator (16) and a demodulator (28), respectively. Muhammad et al disclose a sigma-delta analog-to-digital converter that use low multi-bit (two, three, or four bit), and operate at much higher frequencies, which refers to as oversampling ([0004]; Fig. 1). The sigma-delta ADC makes the precision requirements much lower than the PCM ADC and operates at higher frequencies. Therefore, it is obvious to one of ordinary skill in art to combine the teaching of sigma-delta ADC of Muhammad with the wireless communication system of Shamlou et al. So, that the demodulator is responsive to a digitally modulated RF signal and configured to generate a digital low bit weight digital signal. By doing so, provide noise shaping and high frequency operation in a radio communication system.

Shamlou et al and Muhammad et al are silent about a digital decimating low pass filter. However, Jackson et al disclose a codec system comprises a sigma-delta ADC converter (18 in Fig. 1) coupled to a low pass decimation filter (20 in Fig. 1), and the

output is coupled to a format converter (24) to generate a pulse code modulation digital audio signal (Col 3,L1-36). Therefore, it is obvious to one of ordinary skill in art to combine the teaching of low pass decimation filter and format converter of Jackson with the wireless communication system of Shamlou and Muhammad. By doing so, provide better filtering characteristics and accurate network communication.

b) Regarding to claim 24, Jackson et al disclose a digital to analog converter responsive to said digital filtered signal and configured to generate an analog audio signal (32 in Fig. 1).

14. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamlou et al (US 6,690,949) in view of Muhammad et al (US 2003/0080888), further in view of Jackson et al (US 5,592,165), and in further view of Chen (US 2004/0047327).

a) Regarding to claims 25 and 26, Shamlou et al, Muhammad et al and Jackson are silent about a power sensing circuit and a power level feedback signal.

However, Chen discloses a CDMA communication system comprises a transceiver, wherein the receiver generates a received signal quality measurement that determine power control quality bit (212 and 214 in Fig. 2) and the transmitter receives a feedback power control signal from the receiver (216 in Fig. 2). The power control mechanism achieve the desire level of performance with the minimum amount of transmit power ([0006]). Therefore, it is obvious to one of ordinary skill in art to implement the power control and feedback teaching of Chen in the wireless

communication of Shamlou et al. By doing so, provide energy efficiency in a wireless communication system.

15. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamlou et al (US 6,690,949) in view of Muhammad et al (US 2003/0080888), in view of Hansen (US 2002/0097791), and further in view of Jackson et al (US 5,592,165).

a) Regarding to claim 28, Shamlou, Muhammad, and Hansen are silent about a digital decimating low pass filter. However, Jackson et al disclose a codec system comprises a sigma-delta ADC converter (18 in Fig. 1) coupled to a low pass decimation filter (20 in Fig. 1), and the output is coupled to a format converter (24) to generate a pulse code modulation digital audio signal (Col 3,L1-36). Therefore, it is obvious to one of ordinary skill in art to combine the teaching of low pass decimation filter and format converter of Jackson with the wireless communication system of Shamlou, Muhammad and Hansen. By doing so, provide better filtering characteristics and accurate network communication.

b) Regarding to claim 29, Jackson et al disclose a digital to analog converter responsive to said digital filtered signal and configured to generate an analog audio signal (32 in Fig. 1).

16. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamlou et al (US 6,690,949) in view of Muhammad et al (US 2003/0080888),

further in view of Hansen (US 2002/0097791), and in further view of Chen (US 2004/0047327).

a) Regarding to claims 30 and 31, Shamlou et al, Muhammad et al and Jackson are silent about a power sensing circuit and a power level feedback signal.

However, Chen discloses a CDMA communication system comprises a transceiver, wherein the receiver generates a received signal quality measurement that determine power control quality bit (212 and 214 in Fig. 2) and the transmitter receives a feedback power control signal from the receiver (216 in Fig. 2). The power control mechanism achieve the desire level of performance with the minimum amount of transmit power ([0006]). Therefore, it is obvious to one of ordinary skill in art to implement the power control and feedback teaching of Chen in the wireless communication of Shamlou et al. By doing so, provide energy efficiency in a wireless communication system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng
Examiner
Art Unit 2611

June 15, 2007

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER